RESEARCH BULLETIN 1023 JUNE 1969

Optimal Organization of Southeastern Ohio Farms

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OHIO AGRICULTURAL RESEARCH AND DEVELOPMENT CENTER
WOOSTER, OHIO

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AGDEX 810 6-69-3M

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INTRODUCTION

The attainment of maximum farm returns requires the optimal combination of all available resource inputs. Income must be adequate to satisfy family living needs, for maintenance of the resource productivity, and for new investment or business expansion. In addition to the financial requirements, the farm business must provide opportunity to satisfy the non-monetary wants and needs of the farm family.

A large number of production possibilities exist for each farm. Many farm families have strong preferences for particular livestock and crop programs. Such preferences may dictate the production possibilities which can be realistically considered for a farm. This study evaluates resource allocation and use for several resource capabilities in southeastern Ohio.

Optimum return (to all factors of production) occurs only when land, labor, capital, and management are fully employed. Within a farm business firm, the most restrictive resource input limits the development of the business activity and may prevent other more abundant resources from being used effectively. Unemployed or underemployed resources yield little return. A shortage of one resource cannot be offset by an abundance of another.

Current Situation

Today the average cash receipts per farm in southeastern Ohio are approximately one-half of the receipts per farm in the rest of the state and one-third of the receipts per farm in the Corn Belt counties.[3] The improvement of family income can be accomplished by using the existing and available farm resources more effectively. Off-farm employment is an important source of income. Agriculture is the major user of available resources in the area. Existing non-agricultural economic pressures have had a minor influence in diverting resources to other uses.

This study is oriented toward improving the utilization of available agricultural resources. Primary farm resource variables consider-

[1]Additional information may be found in the manuscript, Optimal Organization of Southeastern Ohio Farm Situations with Selected Enterprise Alternatives and Resource Availabilities, by Bernard L. Ervin, presented to the Graduate Faculty of The Ohio State University in partial fulfillment of requirements for the Master of Science degree.

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[3]Smith, M. G. et al. Ohio Farm Income. Ohio Agri. Exp. Sta., Dept. Series A. E. 339.

ed include: management, family labor, land, and operating capital. Several livestock production alternatives were considered and four were selected as being economically feasible: grade A dairy, feeder pigs, market beef, and feeder calves. The production of sheep and market hogs was evaluated and found to yield lower returns than the four considered.

OBJECTIVES

Resource availability varies greatly from one area to another and from farm to farm. An optimal plan for one farm may be quite different than for another in the same locale. However, it is possible to identify typical farm situations and to develop an optimal plan for each.

The purpose of this study was to ascertain optimal farm organizations for a variety of existing resource availabilities. Certain restrictions were imposed to ascertain the program modifications needed to attain the most desirable program for the resulting situation.

More specifically, the objectives were:

1. To determine the optimum income-producing farm organization for 240-acre and 480-acre farms with upper quartile land use capability, for two levels of managerial capability, selected amounts of operating capital, and four livestock production possibilities. The livestock possibilities were: (a) grade A dairy, (b) feeder pigs, (c) beef-feeder calves, and (d) beef cows with finished calves and/or possible combinations.
2. To compare returns for the optimum organization with alternative organization.
3. To ascertain the influence of varied resource availabilities on farm income.

REVIEW OF LITERATURE

Agriculture was the major source of income for three-fifths of the families and the only source of income for one-third of the families in southeastern Ohio as reported in a study by Steward (10). Off-farm employment provided the income for two-fifths of the families. The small size of the farm business was a major income limitation and most families had large amounts of surplus labor.

In a Monroe County rural development study, Andrews, Bauder, and Rogers (1) found that one-third of the farm operators had nonfarm jobs in 1954 as compared to one-sixth in 1940. Skilled labor demands of industry were satisfied from immigration and farmers in Monroe County had been slower to adopt new practices than farmers in other parts of Ohio.

Olson (5) concluded that a full-time off-farm job, along with farm production utilizing the remaining available labor supply, would maximize income. A dairy producing grade A milk was the most profitable livestock enterprise. If capital was extremely restricted, hogs and poultry were also profitable possibilities.

In a study of "typical" Potter County, Pa., farms, Gertel (3) found that it was possible for a full-time worker to earn a $4,000 annual labor return. Income on these farms was optimized with a dairy enterprise. A secondary enterprise of a small poultry flock was profitable. Small farms, when combined with a full-time off-farm job, yielded a satisfactory labor income.

Cogan (2) concluded that a beef cow herd can be a profitable livestock enterprise on southeastern Ohio farms with a high level of management. The sale of finished market cattle yielded higher family income than the sale of feeder calves. With such a program, 500 to 700 acres would be required to fully employ the available family labor. On a part-time operation, a farm of 120-170 acres with a herd of 25-30 cows would be desirable.

Shaudys and Sitterley (7) found that the system of managing the beef cow-calf enterprise on most southeastern Ohio farms was related to land capability. The farmers with land suited for crop production utilized their feeds to produce finished cattle. Those with rough land sold offspring as feeder calves.

Woods and Buddemeier (11) reported that chances for financial success of a beef cattle farm were seriously limited in southern Illinois. Efficient use of resources, especially labor, was difficult. Capital limitations impeded the development of efficient beef cow herds.

Janssen (4) concluded that the beef cow herd was adaptable to selected types of Indiana farms. A beef cow-calf herd can be profitably included in the organization of a large hilly farm capable of producing forages required for land maintenance. Another situation would be a small farm unit combined with off-farm employment. A beef cow herd could be profitably maintained on a grain farm as a supplementary activity.

METHOD OF STUDY

Linear programming was the analytical tool used in this study. Each of 280 possible resource input combinations was considered.

To develop an ideal organization for southeastern Ohio farms, it was assumed that sufficient time was available to effect the major adjustments required for the program recommended.

It was assumed that the operator's dwelling and machine storage existing on a farmstead would have utility for the program developed. Buildings needed for other purposes, fences, and needed equipment must be acquired for the enterprise selected. It was assumed that the necessary land could be acquired in a contiguous unit at either the 240-acre or 480-acre size tract. Market prices were used for real estate, crops, livestock, and other farm commodities sold, as well as for items purchased for production (Appendix, Table 23).

RESOURCE AVAILABILITIES

Management

Two management levels (designated A and B) were used for this study. These levels are reflected in the crop yields, fertilizer application, labor performance, timeliness of operations, livestock performance, and other factors.

Management level A was selected as representative of the upper 10 percent of commercial farm operators in southeastern Ohio. Management level B represents the upper 25 percent of farmers in the same area. It was assumed that managerial performance would be equally capable in all activities considered.

Capital

Each crop, pasture, livestock, labor, and feed activity had a specified variable (operating) capital requirement. There was also a fixed capital requirement determined for each farm situation. A 5 percent charge was made against all capital employed to reflect the costs of using the capital in the farm business. Additional returns to capital appeared as part of the residual available for family and operator labor and management income.

Real estate and personal property taxes were charged at $25 per $1,000 of the tax valuation, which in turn was computed at 45 percent of current market value. Insurance was charged at $3.60 per $1,000 of coverage on 80 percent of the mid-life value of the asset.

TABLE 1.—Hours of Productive Labor Available During the Four Critical Months on Southeastern Ohio Farms.

Month	Operator	Operator's Family	Hired	Miscellaneous and Maintenance Requirements	Total Productive Hours
May	300	40	100	22	418
June	300	100	400	40	760
July	300	100	400	40	760
October	300	40	100	22	418

Labor

Three sources of labor availability were included: operator, family, and hired. Large amounts of labor were needed during the crop planting, haymaking, hog farrowing, and corn harvesting seasons. If the available labor could handle the work load during the critical months, it was assumed to be adequate to handle the farm labor requirements during the rest of the year. A maximum of 95 percent of the total labor available in any month could be used for productive work.

Labor could be hired up to the limit shown in Table 1. Hired labor was capable of performing any of the farm work and could be secured for $1.25 per hour.

Land

The land-use pattern programmed was determined from the Ohio Soil and Water Conservation Needs Inventory (6). Information used to ascertain long-run land-use capabilities included: soil type, soil erosion, present use, soil capability class, and size of each capability area. For example, in this survey, land areas presently in pasture and exceeding 5 acres in size could not be economically transferred to cropland use. Conversely, land in cropland use but with an indicated capability of a more conserving use was transferred out of crop use if the area was larger than 3 acres. Land in forest but suited for pasture or cropland was permitted to remain in forest because of the high cost of conversion. Land in farmsteads, roads, and urban uses was classified as non-farm use. The capabilities of each sample unit were then arrayed by county.

The cropland use capability quartile means were ascertained for each county. The upper quartile cropland farms were used as the land resource base for this study.

TABLE 2.—Percent of Farm Area in Cropland in 14 Southeastern Ohio Counties.*

Zone 1		Zone 2	
County	**Percent**	**County**	**Percent**
Muskingum	66	Hocking	53
Guernsey	63	Washington	48
Gallia	59	Noble	46
Perry	59	Morgan	45
Belmont	58	Vinton	44
Jackson	58	Monroe	41
Meigs	58	Athens	33
Average Zone 1	60	Average Zone 2	44

*Upper quartile of cropland farms.

TABLE 3.—Land Use Capability by Zone, Southeastern Ohio.*

Land Use	Zone 1 (More Level Land)	Zone 2 (More Hill Land)
	Percent	
Cropland	60	44
Pasture	14	22
Forest	18	26
Other Land	8	8
Total	100	100

*Capability for farms with the upper 25 percent of cropland.

Note: Zone 1—Perry, Muskingum, Guernsey, Belmont, Jackson, Gallia, and Meigs counties; Zone 2—Hocking, Morgan, Noble, Monroe, Vinton, Athens, and Washington counties.

The study area was divided in two zones based upon the percentage of cropland classification for the upper quartile. Zone 1 farms had an average of 60 percent of the total farm area with a cropland use potential, 14 percent permanent pasture, 18 percent forest, and 8 percent in farmstead and other. Zone 2 farms had 44 percent of the total farm area with a cropland use potential, 22 percent pasture, 26 percent forest, and 8 percent farmstead and other.

Fixed rotations were used for each of the land capability zones. A rotation of corn, small grain, and 1-year meadow was considered as satisfactory for the land use capability in Zone 1. A rotation of corn, small grain, and meadow-meadow was considered necessary to maintain the productivity of the Zone 2 capability cropland. In either case, the small grain was equally divided between wheat and oats and the meadow could be pastured or harvested as hay or in any combination. Crop yields were established for two management levels for both zones.

TABLE 4.—Existing Investment and Annual Fixed Costs of Land per Farm and per Acre on Selected Southeastern Ohio Farms, by Zone and Farm Size.

Item	Zone 1		Zone 2	
	240 Acres	480 Acres	240 Acres	480 Acres
Capital Investment				
Total	$42,629	$85,258	$33,660	$67,320
Per Acre	178	178	140	140
Annual Costs				
Taxes	480	959	379	757
Interest	2,131	4,263	1,683	3,366
Total	2,611	5,222	2,062	4,123
Per Acre	11	11	9	9

TABLE 5.—Grain and Hay Yields, by Management Level and for All Farms, Southeastern Ohio (per Acre).

Item	Unit	Management Level A	Management Level B	County Average
Corn	bu.	85	70	60
Wheat	bu.	32	28	26
Oats	bu.	45	38	37
Hay, one cutting	ton	1.9	1.0	.7
Hay, two cuttings	ton	3.0	1.6	1.1
Hay, three cuttings	ton	3.8	2.0	1.4

PRODUCTION POSSIBILITIES

The following assumptions were made in developing budgets for the various activities considered in determining the optimal organization of some typical southeastern Ohio farms for 1975.

Crops

The costs of producing crops varied with farm size, equipment required, and land use capability. Pasture improvement levels could be varied with the livestock program, labor supply, capital situation, farm size, and cost of acquiring off-farm nutrients. The six permanent pasture alternatives considered included Kentucky bluegrass with four levels of treatment and birdsfoot trefoil with two levels of treatment. Costs for establishment and maintenance of these pastures were computed to reflect the differences in economic performance.

Hay could be purchased up to and including a limit of 40 tons.

Machinery, buildings, and facilities for crop production or storage and fences for pasturing of livestock were included as part of the capital required.

Livestock

The four livestock production activities were: dairy, beef cow herd with offspring sold at finished market weights, beef cow-feeder calf, and feeder pigs. Any combination of these four livestock activities was possible. Crops could be sold directly if the returns were superior to the feeding of livestock.

Dairy

A dairy cow unit included a 1200-lb. Holstein cow and the necessary replacement. A cow was maintained in the herd for an average of four lactations. Artificial breeding was used and needed replacements were raised. Hay, pasture, and grains could be substituted on a

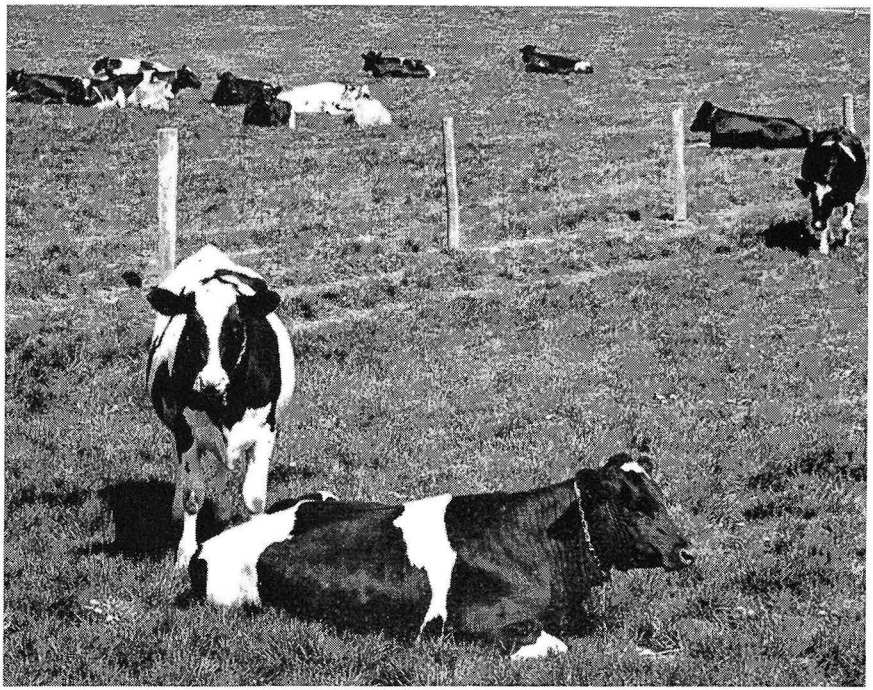
nutrient equivalent basis. The dairy herd production requirements were based on a one-man labor force using a double-four herringbone parlor and loose housing facility.

Management level A production was established at 12,000 lb. of 3.5 percent fat-corrected milk (F.C.M.) and level B at 9,000 lb. of 3.5 percent F.C.M. sold per cow. The added capital investment required per cow was $862 for A management level and $779 for B management level (Table 20). Returns from dairy for all inputs consumed were $461 and $346 per cow for A and B management levels, respectively.

A herd of at least 25 cows was required for dairy to be considered feasible. Program solutions with less than 25 cows were rejected be-

TABLE 6.—Dairy Returns, Variable Costs, and Net Returns per Cow Unit, by Management Level, Southeastern Ohio.

Item	Management Level	
	A	B
Returns		
Milk	$495.90	$371.93
Cull Cows	42.00	42.00
Cull Heifers	20.00	17.40
Heifer Calves	1.00	.87
Bull Calves	4.75	4.50
Manure	16.48	16.48
Gross Returns	$580.13	$453.18
Variable Costs		
Grinding	5.33	3.56
Purchased Feed	19.56	14.39
Veterinary	10.00	10.00
Breeding	8.00	8.00
Miscellaneous, Water, Electricity	1.25	1.25
Animals		
Interest	21.70	17.95
Taxes	5.43	4.49
Insurance	1.24	1.03
Buildings and Equipment		
Interest	9.67	9.67
Taxes	2.23	2.23
Insurance	.56	.56
Depreciation	26.32	26.32
Repairs	7.50	7.50
Variable Costs	$118.79	$106.95
Net Returns	$461.34	$346.23



Dairy herd combined with feeder pig production will yield most return for available resource inputs.

cause of the prohibitive overhead cost required to establish and operate a dairy enterprise.

Beef

Feeder calf and finished market beef were considered as possibilities. A 12 percent replacement ratio and one bull for each 30 cows were used. Cows were bred to calve in early March. The A management level achieved a 95 percent calf crop and the B level a 90 percent calf crop.

Feeder calf production yielded a marketable calf in October. The A management level allowed 300 lb. of corn for creep feeding and produced a 460 lb. calf while the B management level fed 150 lb. of corn and marketed a 425 lb. calf. Capital required per cow for feeder calf production totaled $317 for A management level and $285 for B management level. Returns were $86.17 and $74.30 for A and B levels, respectively.

Finished beef. The calves were handled in the same manner as the feeder calves (except they were not creep fed) until weaned, when they

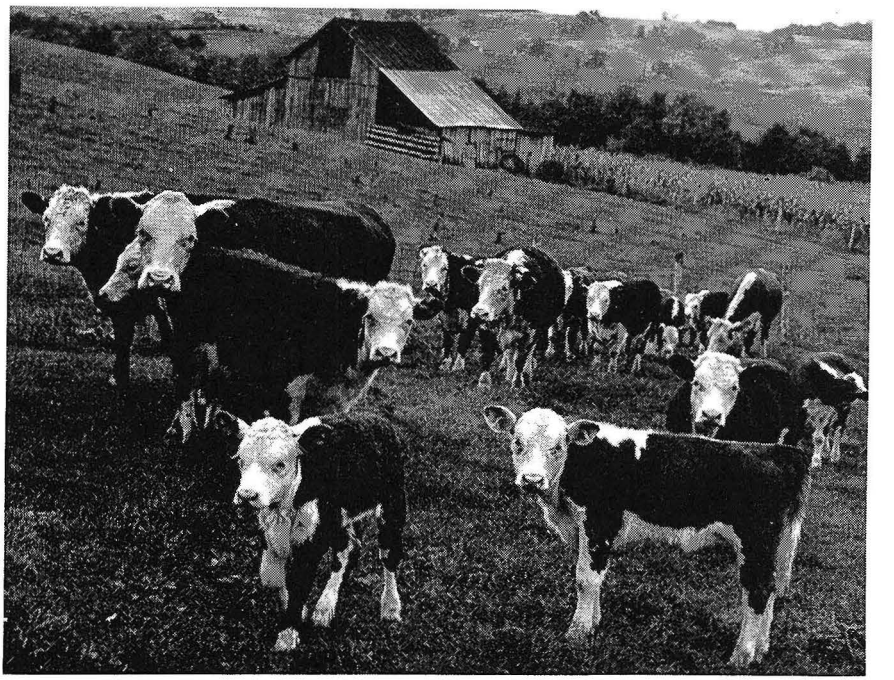
TABLE 7.—Beef Returns, Variable Costs, and Net Returns per Unit, by Management System and Management Level, Southeastern Ohio.

Item	Feeder Calf Management Level		Delayed Fattening Management Level	
	A	B	A	B
Returns				
Production Sales	$100.28	$ 86.91	$197.60	$180.04
Cull Cow Sales	17.50	17.50	17.50	17.50
Manure	2.93	2.93	10.94	10.94
Gross Returns	120.71	107.34	226.04	208.48
Variable Costs				
Purchased Feed	1.41	1.41	9.79	9.79
Grinding and Mixing	.40	.20	1.63	1.63
Veterinary	4.00	4.00	5.00	5.00
Animals				
Interest	9.88	8.89	14.88	13.89
Taxes	2.47	2.22	3.34	3.12
Insurance	.57	.51	.86	.80
Buildings and Equipment				
Interest	2.29	2.29	2.77	2.77
Taxes	.45	.45	.63	.63
Insurance	.11	.11	.16	.16
Depreciation	5.61	5.61	7.11	7.11
Repairs	1.61	1.61	1.99	1.99
Marketing	4.74	4.74	3.69	3.69
Miscellaneous, Water, Electricity	1.00	1.00	1.00	1.00
Variable Costs	34.54	33.04	52.85	51.58
Net Returns	$ 86.17	$ 74.30	$173.19	$156.90

were fed a winter growing ration (14 lb. hay, 3 lb. corn and cob meal, and ½ lb. soybean oil meal per day). Following the winter growing period, they were pastured from May 1 to August 1 and fed a limited quantity of grain. From August 1 until marketed in October, a full ration was fed. Steers were sold at 1025 lb. and heifers at 875 lb. in October. A market price differential was used for steers and heifers. The A level manager was able to produce and sell a better quality animal and received $.75 per hundredweight more money for his cattle.

Finished beef returns per cow were $173.19 for the A management level and $156.90 for the B level.

Good market opportunities exist for both finished beef animals and feeder calves. Corn Belt feeders have been purchasing a larger number



Land capability affects choice of management system for beef cow-calf enterprise on southeastern Ohio farms.

TABLE 8.—Capital Requirements for One Beef Cow Unit, by Management System and Management Level, Southeastern Ohio.

Item	Feeder Calf Management Level		Delayed Fattening Management Level	
	A	B	A	B
Buildings and Equipment	$ 89.00	$ 89.00	$104.00	$104.00
Cow	175.00	150.00	175.00	150.00
Replacement	25.00	21.42	25.00	21.42
Bull	11.67	8.33	11.67	8.33
Purchased Feed and Grinding	1.81	1.81	11.42	11.42
Veterinary	4.00	4.00	5.00	5.00
Taxes, Insurance, Repairs	5.21	4.90	6.98	6.70
Marketing and Miscellaneous	5.74	5.74	4.69	4.69
Feeders	—	—	100.00	100.00
Total	$317.43	$285.20	$443.76	$411.56

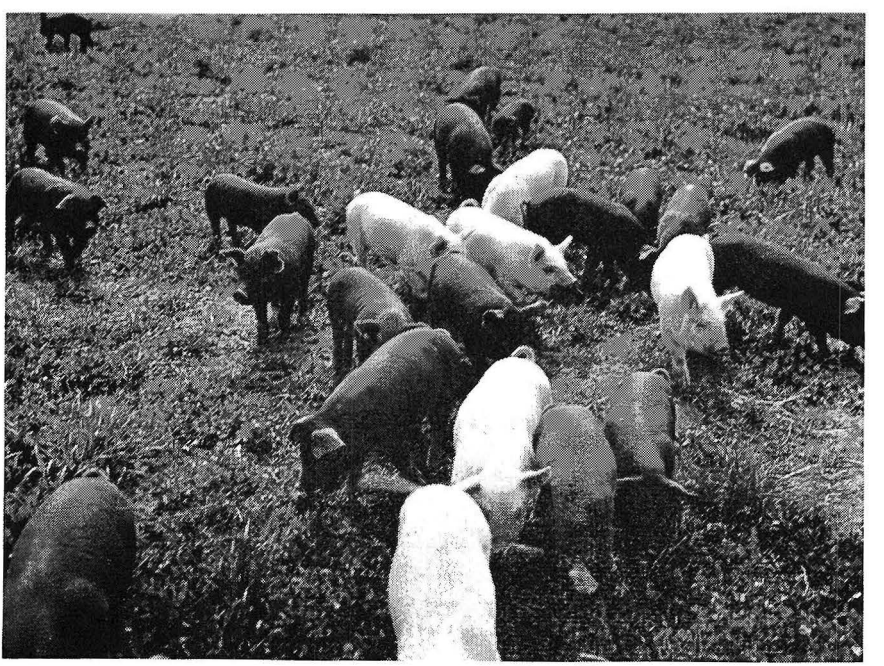
of southeastern Ohio beef feeder calves each year during the past 15 years. Continued improvement in the quality of animals, encouraged by the cooperative feeder calf sales, has been conducive to this increased demand.

Swine

The production of feeder pigs was the only swine enterprise considered. Pigs were farrowed in March, July, September, and December. The sow unit included the sow, replacement, her share of the boar expense, and a nonbreeder allowance. One boar was provided for each 15 sows.

Fourteen and twelve 40-lb. pigs were marketed per sow farrowed with A and B management levels, respectively.

Feed, housing, capital, and maintenance inputs necessary to handle a sow unit were varied with the management level. Buildings provided included a central farrowing house, sow and boar shelter, and portable shelters for use on pasture. Limits of 70 sows for A management level and 50 sows for B level were imposed. Net returns per sow unit were $131.25 for A management level and $108.06 for B level.



An intensive livestock program combined with the possible crop production is good use of available family labor and other resources.

TABLE 9.—Gross Returns, Variable Costs, and Net Returns per Swine Unit, by Management Level, Southeastern Ohio.

Item	Management Level A	Management Level B
Returns		
Production Sales	$178.50	$153.00
Cull Sow Sales	27.00	27.00
Manure	1.20	1.20
Gross Returns	$206.70	$181.20
Variable Costs		
Purchased Feed	15.50	15.50
Grinding and Mixing	4.49	4.49
Veterinary	16.00	14.00
Animals		
Interest	3.32	3.08
Taxes	.83	.77
Depreciation	.19	.18
Buildings and Equipment		
Interest	6.47	6.47
Taxes	1.47	1.47
Insurance	.36	.36
Depreciation	17.89	17.89
Repairs	4.43	4.43
Electricity, Fuel, Water	4.50	4.50
Total Variable Costs	$ 75.45	$ 73.14
Net Returns	$131.25	$108.06

TABLE 10.—Capital Required for One Swine Unit, by Management Level, Southeastern Ohio.

Item	Management Level A	Management Level B
Sow	$ 60.00	$ 50.00
Non-breeders	4.00	5.00
Replacement	10.25	9.63
Boar	7.00	5.67
Equipment	61.03	61.03
Building	191.34	191.34
Operating	47.77	45.70
	$381.39	$368.37

DISCUSSION AND FINDINGS

Farm organizations were generated for each of the 280 possible resource combinations. Restrictions imposed by the amounts and types of land, available family and hired labor, management levels, and amounts of capital were programmed to ascertain the enterprise or combination of enterprises which would yield the greatest monetary return. After the optimal income generating program had been ascertained, the farm was replanned with the next highest income-producing livestock enterprise. Small income differences were found in some instances. In these cases, satisfaction and subjective choice may be significant.

Findings are presented for two farm sizes, 240 acres and 480 acres, and for two levels of management, A and B. The basic farm real estate was assumed to be available, including the land, operator's dwelling, and some machinery housing. The operating or variable capital needed to secure the livestock facilities for handling livestock and for the farm operating needs was programmed at selected availabilities varying from $15,000 to $80,000. This was done to ascertain the influence on farm income of capital and other resource availabilities.

Labor and management income were used to compare and select the most desirable farm organizations for given resource availabilities for selected southeastern Ohio farm situations. The optimal detailed plans generated by linear programming are presented in the Appendix.

The optimal employment of farm resources improved existing farm incomes. It was ascertained that with an adequate amount of capital and a good level of management, satisfactory incomes would result. When the farm labor resources were limited to the operator and family labor available, 480 acres often exceeded the optimum amount of land needed for an efficient organization. An intensive livestock program enhances the income-earning possibilities for most farm situations. The intensity of livestock was directly related to the capital available.

Grade A dairy and feeder pigs maximized returns to resources found on these farms. However, a beef cow finishing enterprise in combination with feeder pigs was superior to feeder pigs as the only enterprise. An intensive livestock enterprise such as the beef finishing activity failed to permit the available labor to be employed and often resulted in part of the land base being utilized less intensively than necessary for a good return.

Generally, economic studies made for land of this type have indicated that off-farm employment was a more profitable use of labor than farm work. It was found, as reported by other researchers, that a beef cow herd required a large extensive land base and that returns would be low. This study demonstrated that an intensive livestock program

TABLE 11.—Income Produced and Capital Investment for Optimal Farm Programs for 240-Acre Zone 1 Land with A and B Management Levels.

Enterprise	Management Level A			Management Level B		
		Income			Income	
	Capital	Labor and Management	Farm	Capital	Labor and Management	Farm
Dairy—Feeder Pig	$124,182	$14,958	$21,167			
	110,226*	12,930	19,543			
				$100,550	$5,960	$10,988
				95,226*	5,436	10,197
Dairy	104,051	11,882	17,085			
	95,226*	10,375	15,136			
				86,241	4,315	8,627
				80,226*	3,654	7,665
Beef Finish—Feeder Pig	100,090	6,740	11,744			
	95,226*	6,654	11,415			
				81,291	2,428	6,493
Feeder Pig	91,120	6,466	11,022			
	80,266*	4,616	8,629			
	65,226*	1,640	4,901			
				78,791	2,360	6,300
				65,226*	491	3,752
Beef Finish	76,589	1,554	5,383			

*Capital was a limiting resource input.

Note: Farm income minus a charge for capital equals labor and management income.

TABLE 12.—Income Produced and Capital Investment for Optimal Farm Programs for 480-Acre Zone 1 Land with A and B Management Levels.

Enterprise	Management Level A Capital	A Income: Labor and Management	A Income: Farm	Management Level B Capital	B Income: Labor and Management	B Income: Farm
Dairy—Feeder Pig	$168,877	$14,048	$22,492			
	153,521*	12,909	20,595			
				$155,826	$7,044	$14,835
Dairy	154,652	12,836	20,568			
	138,521*	9,672	16,598			
				144,889	5,931	13,175
				138,521*	7,489	12,415
Beef Finish—Feeder Pig	163,178	8,490	16,649			
	153,521*	8,398	16,074			
				138,179	2,901	9,810
Feeder Pig	145,581	8,116	15,395			
	138,521*	7,024	13,950			
	123,521*	4,285	10,461			
				130,042	2,593	9,095
				123,521*	1,853	8,029
Beef Finish	145,504	3,833	11,108			
	138,521*	3,725	10,651			
	123,521*	3,438	9,614			
				121,711	484	6,570

*Capital was a limiting resource input.

Note: Farm income minus a charge for capital equals labor and management income.

combined with the possible crop production is a good use of available farm family labor and other resources. However, it must be remembered that good quality land was assumed to be available, as well as a high level of managerial input. Capital and management were of more importance than a large land area in obtaining a satisfactory income. Additionally, careful selection of the livestock activity needs to be made if farm family income is to be maximized.

Farm Income and Capital Investment for Zone 1 with Optimal Farm Plans, Southeastern Ohio.

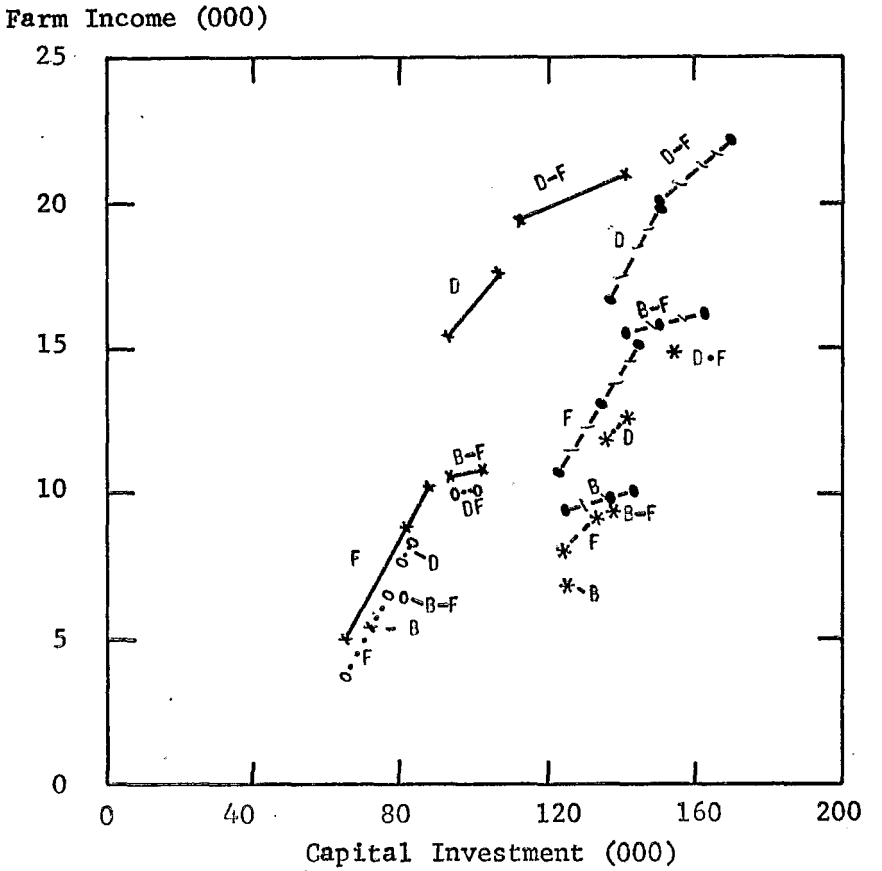


TABLE 13.—Income Produced by Capital Investment for Optimal Farm Programs for 240-Acre Zone 2 Land with A and B Management Levels.

Enterprise	Management Level A			Management Level B		
		Income			Income	
	Capital	Labor and Management	Farm	Capital	Labor and Management	Farm
Dairy—Feeder Pig	$121,496	$15,024	$21,098			
	99,176*	12,811	17,770			
				$95,896	$6,087	$10,886
				84,176*	5,307	9,516
Dairy	98,569	12,644	17,572			
	84,176*	10,014	14,223			
				80,091	4,636	8,641
				69,176*	3,484	6,943
Beef—Feeder Pig	87,840	5,857	10,249			
	84,176*	5,809	10,090			
				68,435	1,979	5,401
Feeder Pig	80,978	5,651	9,700			
	69,176*	4,127	7,586			
	54,176*	1,315	4,024			
				69,199	1,899	5,309
				54,176*	365	3,074
Beef Finish	67,060	944	4,297			

*Capital was a limiting resource input.

Note: Farm income minus a charge for capital equals labor and management income.

TABLE 14.—Income Produced by Capital Investment for Optimal Farm Programs for 480-Acre Zone 2 Land with A and B Management Levels.

	Management Level					
	A			B		
		Income			Income	
Enterprise	Capital	Labor and Management	Farm	Capital	Labor and Management	Farm
Dairy—Feeder Pig	$153,463	$15,777	$22,950			
				$140,307	$7,540	$14,555
Dairy	141,479	14,925	21,999			
	119,917*	8,791	14,787			
				128,650	6,481	12,914
				98,733*	5,716	10,653
Beef—Feeder Pig	148,041	7,987	15,389			
	134,917*	7,832	14,578			
				116,941	2,536	8,383
Feeder Pig	119,917*	6,721	12,717			
				109,842	2,266	7,758
				104,917*	1,871	7,117
Beef Finish	125,347	3,035	9,302			
	119,917*	2,962	8,958			
	104,917*	2,669	77,915			

*Capital was a limiting resource input.

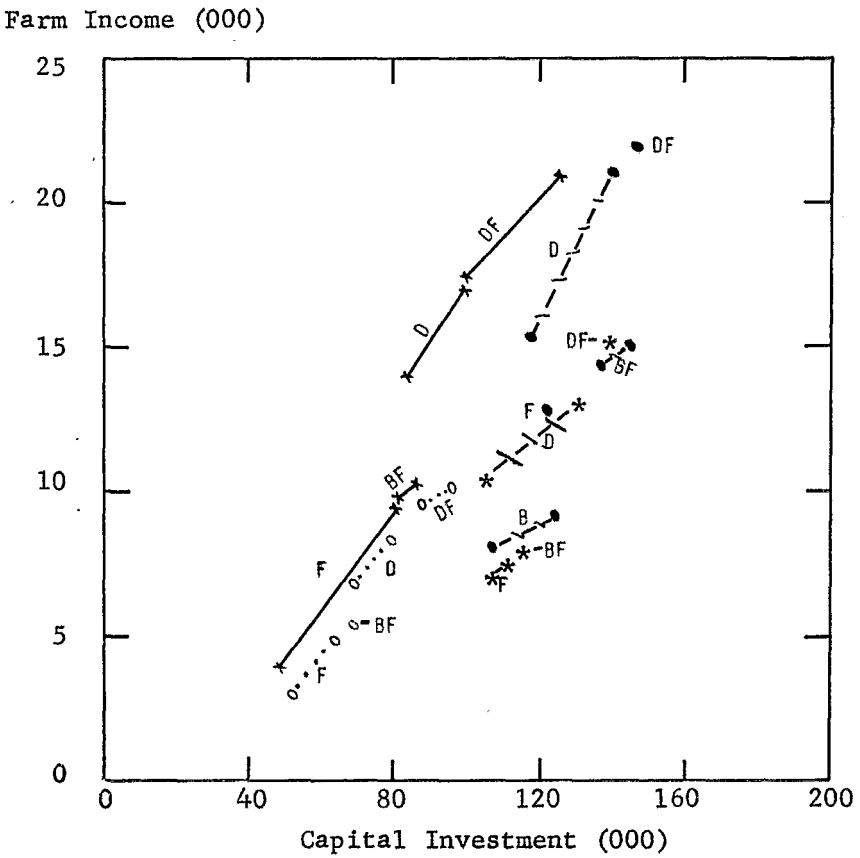
Note: Farm income minus a charge for capital equals labor and management income.

SUMMARY

Southeastern Ohio can be characterized as having a rolling topography, well-suited to the production of forage crops. Agriculture is the dominant user of land resources in the area. Efficient utilization of resources available for agricultural production is essential.

This study was conducted to ascertain the optimal combination of resources for the production of major livestock activities. High levels

Farm Income and Capital Investment for Zone 2 with Optimal Farm Plans, Southeastern Ohio.



of managerial inputs, better quality land, selected amounts of land, and capital availabilities were considered.

It was found that a combination of a dairy herd and the production of feeder pigs would yield the most monetary return for the available resource inputs. If the farm operator prefers dairy or objects to hogs, then dairy as the only livestock would make the highest monetary income. Dairy alone produced about 8 percent less income than for a dairy-feeder pig operation. If the farm family objects to the confinement of a dairy operation, the production of feeder pigs and feeding out home-produced beef calves is desirable.

Many farm firms have the possibility of an adequate resource base for a satisfactory farm family income. The resource limitations must be realized and honored if they are to be effectively employed for income-generating purposes.

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TABLE 15.—Livestock Numbers, Crop Sales, Income, and Forage Use, by Operating Capital Available on Optimally Organized 240-Acre Zone 1 Farms with A Management Level, Southeastern Ohio, 1963.

	Operating Capital and Livestock Activity									
	Beef*	Feeder Pig†			Beef—Feeder Pig†		Dairy		Dairy—Feeder Pig	
Item	$26,363	$15,000‡	$30,000‡	$40,894	$45,000‡	$49,844	$45,000‡	$53,825	$60,000‡	$73,956
Total Capital	$76,589	$65,226	$80,266	$91,120	$95,226	$100,070	$95,226	$104,051	$110,226	$124,182
Livestock										
Beef Finish, Cow	29	—	—	—	10	23	—	—	—	—
Dairy, Cow	—	—	—	—	—	—	36	43	40	36
Feeder Pig, Sow	—	7	47	70‡	70‡	70‡	—	—	24	70‡
Crops Sold										
Corn, bu.	3,396	3,817	2,291	1,420	1,193	889	2,438	2,126	1,349	(72)
Oats, bu.	1,080	1,001	539	275	275	275	1,080	1,080	800	—
Wheat, bu.	768	768	768	768	768	768	768	768	768	768
Hay, ton	—‡	117	143	164	108	—‡	(80)‡	(80)‡	(80)‡	(80)‡
Straw, ton	33	46	36	30	26	19	(25)	(39)	(39)	(42)
Hours of Labor, Surplus Family or Hired										
May	112	124	83	—‡	11	31	(30)	(100)‡	(100)‡	(100)‡
October	161	218	166	136	113	84	56	23	7	(35)
Meadow, acres										
Pasture, Full Season	10	1	5	—	2	12	20	15	11	13
One Crop Hay, Pasture	12	—	3	5	12	21	17	17	27	25
Two Crops Hay, Pasture	—	2	13	14	—	—	6	—	4	10
Three Crops Hay	26	45	27	29	34	15	5	16	6	—
Permanent Pasture, acres										
Clipped	—	—	—	15	—	—	21	—	—	—
Treatment 1§	34	—	—	12	34	34	—	—	14	14
Treatment 2**	—	—	—	—	—	—	—	22	18	20
Birdsfoot Trefoil Hay	—	—	—	7	—	—	—	12	—	—
Unused	—	34	34	—	—	—	13	—	2	—
Labor and Mgt. Income	$ 1,554	$ 1,640	$ 4,616	$ 6,466	$ 6,654	$ 6,740	$10,375	$11,882	$12,930	$14,958
Farm Income††	$ 5,383	$ 4,901	$ 8,629	$11,022	$11,415	$11,744	$15,136	$17,085	$18,441	$21,167

( ) Buy or hire.
*Dairy and feeder pig option removed.
†Dairy option removed.
‡Limiting resource.
§Clipped, 225 lb. 0-25-25, and ¼ ton lime annually.
**Clipped, 255 lb. 0-25-25, ¼ ton lime, and 240 lb. of 33⅓% nitrogen annually.
††Labor and management income plus 5% on total capital investment or farm income less 5% for capital return.
Note: Total capital equals existing real estate investment plus operating capital (additional buildings, equipment, livestock, and cash production costs).

TABLE 16.—Livestock Numbers, Crop Sales, Income, and Forage Use, by Operating Capital Available on Optimally Organized 240-Acre Zone 1 Farms with B Management Level, Southeastern Ohio, 1963.

	Operating Capital and Livestock Activity						
	Feeder Pig		Beef—Feeder Pig†	Dairy*		Dairy—Feeder Pig	
Item	$15,000‡	$28,565	$31,065	$30,000‡	$36,015	$45,000‡	$ 50,324
Total Capital	$65,226	$78,791	$81,291	$80,226	$86,241	$95,226	$100,550
Livestock							
Beef Finish, Cow	—	—	6	—	—	—	—
Dairy, Cow	—	—	—	25	30	25	25
Feeder Pig, Sow	17	50‡	50‡	—	—	36	50‡
Crops Sold							
Corn, bu.	2,705	1,409	1,261	2,620	2,468	1,200	667
Oats, bu.	719	337	337	912	912	496	337
Wheat, bu.	672	672	672	672	672	672	672
Hay, ton	78	61	27	(77)	(80)‡	(77)	(80)‡
Straw, ton	44	35	32	(1)	(11)	(11)	(14)
Hours of Labor, Surplus Family or Hired							
May	173	106	108	68	18	3	(12)
October	205	162	148	65	24	63	44
Meadow, acres							
Pasture, Full Season	5	—	24	4	10	16	15
One Crop Hay, Pasture	3	15	24	24	26	32	33
Two Crops Hay, Pasture	10	33	—	20	12	—	—
Three Crops Hay	30	—	—	—	—	—	—
Permanent Pasture, acres							
Clipped	—	34	31	25	—	—	—
Treatment 1§	—	—	—	—	—	21	—
Treatment 2**	—	—	3	9	24	13	23
Birdsfoot Trefoil	—	—	—	—	10	—	11
Unused	34	—	—	—	—	—	—
Labor and Mgt. Income	$ 491	$2,360	$2,428	$3,654	$4,315	$ 5,436	$ 5,960
Farm Income††	$3,752	$6,300	$6,493	$7,665	$8,627	$10,197	$10,988

( ) Buy or hire.
*Feeder pig option removed.
†Dairy option removed.
‡Limiting resource.
§Clipped, 175 lb. 0-25-25, and ¼ ton lime annually.
**Clipped, 255 lb. 0-25-25, ¼ ton lime, and 250 lb. 33⅓% nitrogen annually.
††Labor and management income plus 5% on total capital invested.

TABLE 17.—Livestock Numbers, Crop Sales, Income, and Forage Use by Operating Capital Available on Optimally Organized 480-Acre Zone 1 Farms with A Management Level, Southeastern Ohio, 1963.

	Operating Capital and Livestock Activity											
	Finished Beef*			Feeder Pig			Beef—Feeder Pig†		Dairy		Dairy—Feeder Pig	
Item	$ 30,000‡	$45,000‡	$51,983	$30,000‡	$45,000‡	$52,060	$60,000‡	$69,657	$45,000‡	$61,131	$60,000‡	$75,356
Total Capital	$123,521	$138,521	$145,504	$123,521	$138,521	$145,581	$153,521	$163,178	$138,521	$154,652	$153,521	$168,877
Livestock												
Beef Finish, Cow	11	44	58	—	—	—	19	44	—	—	—	—
Dairy, Cow	—	—	—	—	—	—	—	—	32	47	39	35
Feeder Pig. Sow	—	—	—	16	56	70‡	70‡	70‡	—	—	21	70
Crops Sold												
Corn, bu.	7,906	7,131	6,793	7,546	6,035	5,500	5,062	4,471	5,207	5,460	4,346	2,427
Oats, bu.	2,160	2,160	2,160	1,974	1,517	1,355	1,355	1,355	1,765	2,005	1,585	962
Wheat, bu.	1,536	1,536	1,536	1,536	1,536	1,536	1,536	1,536	1,536	1,536	1,536	1,536
Hay, ton	308	87	—‡	350	315	331	204	—	18	(80)‡	—‡	(80)‡
Straw, ton	91	74	67	92	82	78	69	57	14	(5)	(2)	(10)
Hours of Labor, Surplus Family or Hired												
May	(32)	(53)	(65)	(16)	(65)	(100)‡	(100)‡	(100)‡	(100)‡	(100)‡	(100)‡	(100)‡
October	106	31	(1)	110	58	40	(5)	(67)	14	(79)	(51)	(97)
Meadow, acres												
Pasture, Full Season	—	16	20	2	6	8	11	32	29	60	28	60
One Crop Hay, Pasture	6	18	25	1	5	—	15	24	18	—	18	—
Two Crops Hay, Pasture	—	—	—	4	15	14	—	—	6	—	8	—
Three Crops Hay, Pasture	90	62	51	89	70	74	70	40	26	29	27	19
Unused	—	—	—	—	—	—	—	—	17	7	15	17
Permanent Pasture, Acres												
Clipped	49	33	—	—	—	42	68	68	—	—	—	—
Treatment 1§	—	35	68	—	—	—	—	—	—	—	—	—
Treatment 2**	—	—	—	—	—	—	—	—	—	—	—	—
Unused	19	—	—	68	68	26	—	—	68	68	68	68
Labor and Mgt. Income	$3,438	$ 3,725	$ 3,833	$ 4,285	$ 7,024	$ 8,116	$ 8,398	$ 8,490	$ 9,672	$12,836	$12,909	$14,048
Farm Income††	$9,614	$10,651	$11,108	$10,461	$13,950	$15,395	$16,074	$16,649	$16,598	$20,568	$20,585	$22,492

( ) Buy or hire.
*Dairy and feeder pig option removed.
†Dairy option removed.
‡Limiting resource.
§Clipped, 225 lb. 0-25-25, and ¼ ton lime annually.
**Clipped, 255 lb. 0-25-25, ¼ ton lime, and 250 lb. 33⅓% nitrogen annually.
††Labor and management income plus 5% on total capital investment.

TABLE 18.—Livestock Numbers, Crop Sales, Income, and Forage Use, by Operating Capital Available on Optimally Organized 480-Acre Zone 1 Farms with B Management Level, Southeastern Ohio, 1963.

	Operating Capital and Livestock Activity						
	Beef*	Feeder Pig		Beef—Feeder Pig†	Dairy		Dairy—Feeder Pig
Item	$28,190	$30,000‡	$36,521	$44,658	$45,000‡	$51,368	$62,305
Total Capital	$121,711	$123,521	$130,042	$138,179	$138,521	$144,889	$155,826
Livestock							
Beef Finish, Cow	25	—	—	20	—	—	—
Dairy, Cow	—	—	—	—	34	40	32
Feeder Pig, Sow	—	37	50‡	50‡	—	—	50
Crops Sold							
Corn, bu.	6,141	5,276	4,770	4,299	5,687	5,517	3,812
Oats, bu.	1,824	1,398	1,249	1,249	1,824	1,824	1,249
Wheat, bu.	1,344	1,344	1,344	1,344	1,344	1,344	1,344
Hay, ton	—‡	139	162	—‡	(80)‡	(80)‡	(80)‡
Straw, ton	84	87	83	73	27	(16)	20
Hours of Labor, Surplus Family or Hired							
May	52	46	4	(8)	(93)	(100)‡	(100)‡
October	77	83	66	20	32	(59)	(89)
Meadow, acres							
Pasture, Full Season	22	28	—	27	44	31	46
One Crop Hay, Pasture	39	—	15	40	48	44	39
Two Crops Hay, Pasture	31	—	22	29	8	6	9
Three Crops Hay	4	57	59	—	4	5	2
Permanent Pasture, Acres							
Clipped	68	—	31	68	30	11	—
Treatment 1§	—	—	—	—	—	—	—
Treatment 2**	—	—	—	—	—	21	15
Unused	—	68	37	—	38	38	53
Labor and Mgt. Income	$ 484	$1,853	$2,593	$2,901	$ 5,489	$ 5,931	$ 7,044
Farm Income††	$6,570	$8,029	$9,095	$9,810	$12,415	$13,175	$14,835

( ) Buy or hire.
*Dairy and feeder pig option removed.
†Dairy option removed.
‡Limiting resource.
§Clipped, 175 lb. 0-25-25, and ¼ ton lime annually.
**Clipped, 175 lb. 0-25-25, ¼ ton lime, and 180 lb. of 33⅓% nitrogen annually.
††Labor and management income plus 5% on total capital invested.

TABLE 19.—Livestock Numbers, Crop Sales, Income, and Forage Use, by Operating Capital Available on Optimally Organized 240-Acre Zone 2 Farms with A Management Level, Southeastern Ohio, 1963.

	Operating Capital and Livestock Activity									
	Beef Finish*	Feeder Pig†			Beef—Feeder Pig†		Dairy		Dairy—Feeder Pig	
Item	$27,884	$15,000‡	$30,000‡	$41,802	$45,000‡	$48,673	$45,000‡	$59,393	$60,000‡	$82,320
Total Capital	$67,060	$54,176	$69,176	$80,978	$84,176	$87,849	$84,176	$98,569	$99,176	$121,496
Livestock										
Beef Finish, Cow	34	—	—	—	8	17	—	—	—	—
Dairy, Cow	—	—	—	—	—	—	38	50	47	42
Feeder Pig, Sow	—	13	51	70‡	70‡	70‡	—	—	9	70‡
Crops Sold										
Corn, bu.	1,408	1,732	277	(450)	(637)	(848)	513	—	(29)	(2,349)
Oats, bu.	585	440	—	(220)	(220)	(220)	585	545	—	(220)
Wheat, bu.	416	416	416	416	416	416	416	416	416	416
Hay, ton	—‡	182	148	223	161	94	(63)	(80)‡	(80)‡	(80)‡
Straw, ton	9	23	13	9	4	—	(49)	(73)	(71)	(76)
Hours of Labor, Surplus Family or Hired										
May	160	204	147	—‡	41	65	3	(100)‡	(89)	(100)‡
October	193	255	205	180	160	140	91	35	37	(25)
Meadow, acres										
Pasture, Full Season	6	2	2	—	—	—	16	6	6	8
One Crop Hay, Pasture	20	—	4	—	6	17	21	20	27	25
Two Crops Hay, Pasture	—	10	34	—	5	2	—	—	—	—
Three Crops Hay, Pasture	27	41	13	53	42	34	16	27	20	20
Permanent Pasture, Acres										
Clipped	—	—	17	2	7	—	53	—	—	—
Treatment 1§	53	—	—	17	30	50	—	33	37	—
Treatment 2**	—	—	—	21‡‡	—	—	—	—	16	35
Unused	—	53	36	—	—	—	—	—	—	4
Birdsfoot Trefoil	—	—	—	13‡‡	16	3	—	20	—	14
Labor and Mgt. Income	$ 944	$1,315	$4,127	$5,651	$ 5,809	$ 5,857	$10,014	$12,644	$12,811	$15,024
Farm Income††	$4,297	$4,024	$7,586	$9,700	$10,018	$10,249	$14,223	$17,572	$17,770	$21,098

( ) Buy or hire.
*Dairy and feeder pig option removed.
§Clipped, 225 lb. 0-25-25, and ¼ ton lime annually.
**Clipped, 225 lb. 0-25-25, ¼ ton lime, and 240 lb. 33⅓% nitrogen annually.
††Labor and management income plus 5% on total capital investment.
‡‡Hay.
†Dairy option removed.
‡Limiting resource.

TABLE 20.—Livestock Numbers, Crop Sales, Income, and Forage Use, by Operating Capital Available on Optimally Organized 240-Acre Zone 2 Farms with B Management Level, Southeastern Ohio, 1963.

	Operating Capital and Livestock Activity						
	Feeder Pig†		Beef—Feeder Pig†	Dairy		Dairy—Feeder Pig	
Item	$15,000‡	$29,023	$29,259	$30,000‡	$40,915	$45,000‡	$56,720
Total Capital	$54,176	$68,199	$68,435	$69,176	$80,091	$84,176	$95,896
Livestock							
Beef Finish, Cow	—	—	5	—	—	—	—
Dairy, Cow	—	—	—	26	35	31	31
Feeder Pig, Sow	22	50‡	50‡	—	—	23	50‡
Crops Sold							
Corn, bu.	980	(130)	(242)	1,041	761	—	(1,045)
Oats, bu.	246	(81)	(81)	494	494	232	(81)
Wheat, bu.	416	416	416	416	416	416	416
Hay, ton	72	97	42	(75)	(80)‡	(80)‡	(80)‡
Straw, ton	21	13	11	(26)	(45)	(42)	(48)
Hours of Labor, Surplus Family or Hired							
May	226	96	153	89	(53)	11	(61)
October	243	206	194	148	102	96	58
Meadow, acres							
Pasture, Full Season	6	—	—	14	24	4	18
One Crop Pasture	4	—	22	36	10	46	22
Two Crops Pasture	36	52	30	2	—	2	—
Three Crops Hay	6	—	—	—	18	—	12
Permanent Pasture							
Clipped	—	31	53	53	—	2	—
Treatment 1‡	—	—	—	—	—	40	—
Treatment 2§	—	6	—	—	19	12	25
Unused	53	—	—	—	—	—	—
Birdsfoot Trefoil	—	16	—	—	34	—	28
Labor and Mgt. Income	$ 365	$1,899	$1,979	$3,484	$4,636	$5,307	$ 6,087
Farm Income**	$3,074	$5,309	$5,401	$6,943	$8,641	$9,516	$10,882

( ) Buy or hire.
†Dairy option removed.
‡Limiting resource.
§Clipped, 175 lb. 0-25-25, and ¼ ton lime annually.
**Clipped, 175 lb. 0-25-25, ¼ ton lime, and 180 lb. 33⅓% nitrogen annually.
††Labor and management income plus 5% on total acpital investment.

TABLE 21.—Livestock Numbers, Crop Sales, Income, and Forage Use by Operating Capital Available on Optimally Organized 480-Acre Zone 2 Farms with A Management Level, Southeastern Ohio, 1963.

	Operating Capital and Livestock Activity								
	Beef Finish*			Feeder Pig†	Beef—Feeder Pig		Dairy		Dairy—Feeder Pig
Item	$30,000‡	$45,000‡	$50,430	$45,000‡	$60,000‡	$93,124	$45,000‡	$66,562	$78,564
Total Capital	$104,917	$119,917	$125,347	$119,917	$134,917	$168,041	$119,917	$141,479	$153,481
Livestock									
Beef Finish, Cow	14	43	56	—	23	47	—	—	—
Dairy, Cow	—	—	—	—	—	—	31	55	39
Feeder Pig, Sow	—	—	—	64	70	70‡	—	—	70‡
Crops Sold									
Corn, bu.	4,176	3,443	3,197	2,091	1,318	753	3,106	2,034	—
Oats, bu.	1,192	1,192	1,193	462	388	388	1,192	1,192	359
Wheat, bu.	832	832	832	832	832	832	832	832	832
Hay, ton	336	175	118	364	260	141	153	(23)	29
Straw, ton	46	30	25	37	24	12	9	(57)	(43)
Hours of Labor, Surplus Family or Hired									
May	1	—	(9)	19	(59)	(100)‡	(35)	(100)‡	(100)‡
October	184	114	91	134	72	20	68	49	61
Meadow, acres									
Pasture, Full Season	—	—	—	—	—	—	20	36	35
One Crop Pasture	—	24	32	6	20	36	17	22	20
Two Crops Pasture	—	—	—	25	—	—	—	47	34
Three Crops Hay	105	81	73	74	85	69	68	—	16
Unused	—	—	—	—	—	—	—	—	—
Permanent Pasture									
Clipped	64	29	—	—	29	—	—	—	—
Treatment 1§	—	74	106‡	16	27	106	—	—	—
Treatment 2**	—	—	—	—	—	—	—	—	—
Unused	21	—	—	90	—	—	106	106	106
Birdsfoot Trefoil Hay	21	3	—	—	—	—	—	—	—
Labor and Mgt. Income	$2,669	$2,962	$3,035	$ 6,721	$ 7,832	$ 7,987	$ 8,791	$14,925	$15,777
Farm Income ††	$7,915	$8,958	$9,302	$12,717	$14,578	$16,389	$14,787	$21,999	$23,451

( ) Buy or hire.
*Dairy and feeder pig option removed.
†Dairy option removed.
‡Limiting resource.
§Clipped, 225 lb. 0-25-25, and ¼ ton lime annually.
**Clipped, 225 lb. 0-25-25, ¼ ton lime, and 250 lb. 33⅓% nitrogen annually.
††Labor and management income plus 5% on total capital investment.

TABLE 22.—Livestock Numbers, Crop Sales, Income, and Forage Use, by Operating Capital Available on Optimally Organized 480-Acre Zone 2 Farms with B Management Level, Southeastern Ohio, 1963.

	Operating Capital and Livestock Activity					
	Feeder Pig†		Beef—Feeder Pig†	Dairy		Dairy—Feeder Pig
Item	$30,000‡	$34,925	$42,024	$45,000‡	$53,733	$65,390
Total Capital	$104,917	$109,842	$116,941	$119,917	128,650	$140,307
Livestock						
Beef Finish, Cow	—	—	19	—	—	—
Dairy, Cow	—	—	—	37	46	39
Feeder Pig, Sow	44	50‡	50‡	—	—	50‡
Crops Sold						
Corn, bu.	2,001	1,760	1,309	2,605	2,323	596
Oats, bu.	503	432	432	1,007	1,007	432
Wheat, bu.	832	832	832	832	832	832
Hay, ton	160	221	66	(25)	(80)‡	(80)‡
Straw, ton	42	40	31	(21)	(39)	(37)
Hours of Labor, Surplus Family or Hired						
May	114	—	43	(83)	(100)‡	(100)‡
October	160	152	106	43	(2)	(36)
Meadow, acres						
Pasture	6	—	4	10	20	32
One Crop Pasture	10	—	40	57	45	46
Two Crops Pasture	60	22	18	—	—	—
Three Crops Hay	29	85	43	38	40	27
Permanent Pasture						
Clipped	14	31	106	106	28	—
Treatment 1§	—	—	—	—	26	—
Treatment 2**	—	14	—	—	—	25
Unused	92	46	—	—	52	81
Birdsfoot Trefoil	—	15	—	—	—	—
Labor and Mgt. Income	$1,871	$2,266	$2,536	$ 5,716	$ 6,481	$ 7,540
Farm Income††	$7,117	$7,758	$8,383	$11,712	$12,914	$14,555

( ) Buy or hire.
†Dairy option removed.
‡Limiting resource.
§Clipped, 175 lb. 0-25-25, and ¼ ton lime annually.
**Clipped, 175 lb. 0-25-25, ¼ ton lime, and 180 lb. 33⅓% nitrogen annually.
††Labor and management income plus 5% on total capital investment.

TABLE 23.—Prices Used in Programming Southeastern Ohio Farms.*

Item	Unit	Price per Unit	
		Sale	Purchase
Corn	Bu.	$ .95	$ 1.15
Wheat	Bu.	1.80	—
Oats	Bu.	.65	.75
Hay	Ton	20.00	23.00
Straw	Ton	12.00	14.00
Grade A Milk (Net)	Cwt.	4.35	—
Cull Dairy Cows	Cwt.	14.00	—
Cull Heifers	Cwt.	22.25	—
Veal Calves	Cwt.	26.25	—
Finished Beef	Cwt.	25.00	—
Feeder Calves	Cwt.	26.00	—
Cull Beef Cows	Cwt.	14.00	—
Cull Sows	Cwt.	15.00	—
Feeder Pigs (40 lb.)	Ea.	12.75	—
Soybean Oil Meal	Cwt.	—	4.14
Lime	Ton	—	5.00
Ammonium Nitrate (33⅓% N)	Ton	—	82.00
0-25-25	Ton	—	68.00
4-16-16	Ton	—	60.00

*Prices selected to represent normal price relationships, 1965-1975.